

A

Notice of Allowability

Application No.

10/624,744

Examiner

Tiffany A Feltzner

Applicant(s)

MURPHY ET AL.

Art Unit

2859

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 08/25/2004.
2. ☒ The allowed claim(s) is/are 1-18.
3. ☐ The drawings filed on _____ are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☒ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☒ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☒ to Paper No./Mail Date 09/02/2004.
 - (b) ☒ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date 09/02/2004.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input checked="" type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input checked="" type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date <u>09/02/2004</u> . |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |

Examiner's Amendment

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.
2. Authorization for this examiner's amendment was given in a telephone interview with **Attorney Bella Fishman Reg. No. 37,485** on 09/02/2004 along with authorization to charge any necessary fees to applicant's deposit account.
3. The application has been amended as follows:

A) Replace claim 1 of the August 13th 2004 amendment response with the following
Examiner amended claim 1:

Claim 1 --- An adjustable 1/4 wave assembly of NMR spectrometry comprising:
a probe having a probe coil and probe capacitors, which detect NMR signals;
a multinuclear frequency adjustable detachable wand comprising:
a central conducting rod supporting a sliding collar made of electrically conductive material;
a tube fixed to said probe receiving therein said detachable wand; and
contacts disposed on a periphery of said sliding collar providing electrical contact with said tube when said detachable wand is inserted into said tube,
wherein said wand and said tube form a 1/4 wave shorted stub. ---

B) Replace claim 2 of the August 13th 2004 amendment response with the following
Examiner amended claim 2:

Claim 2 --- The adjustable 1/4 wave assembly of **claim 1**, further comprising a fastening device, which fixes a position of said sliding collar, on said central conducting rod. ---

C) Replace claim 3 of the August 13th 2004 amendment response with the following
Examiner amended claim 3:

Claim 3 --- The adjustable 1/4 wave assembly of **claim 2**, wherein said probe further comprising:
an electrical socket that is coupled to said probe coil and said probe capacitors;
and said wand further comprising:
an electrical plug mating to said electrical socket with two or more electrical contacts; and
electrical wiring providing connection between said probe and said wand.

D) Replace claim 4 of the August 13th 2004 amendment response with the following
Examiner amended claim 4:

Claim 4 --- The adjustable 1/4 wave assembly of **claim 3**, wherein said wand further comprising wand capacitors. ---

E) Replace claim 5 of the August 13th 2004 amendment response with the following
Examiner amended claim 5:

Claim 5 --- The adjustable 1/4 wave assembly of **claim 4**, wherein said electrical wiring comprising spring clips mounting said wand capacitors, where a number of said spring clips exceeds or is equal to a number of said wand capacitors providing respectively single or double frequency operation of said probe. ---

F) Replace claim 6 of the August 13th 2004 amendment response with the following Examiner amended claim 6:

Claim 6 --- The adjustable 1/4 wave assembly of **claim 3**, wherein said wand further comprising electrical jumpers. ---

G) Replace claim 7 of the August 13th 2004 amendment response with the following Examiner amended claim 7:

Claim 7 --- The adjustable 1/4 wave assembly of **claim 6**, wherein said electrical wiring comprising a number of spring clips mounting said electrical jumpers, wherein the number of said spring clips exceeds or is equal to, a number of said electrical jumpers which respectively provides single or double frequency operation of said probe. ---

H) Replace claim 8 of the August 13th 2004 amendment response with the following Examiner amended claim 8:

Claim 8 --- The adjustable 1/4 wave assembly of **claim 5**, wherein one of said wand capacitors is connected in parallel with said probe coil which reduces the resonant frequency of said probe. ---

I) Replace claim 9 of the August 13th 2004 amendment response with the following Examiner amended claim 9:

Claim 9 --- The adjustable 1/4 wave assembly of **claim 8**, wherein said electrical wiring is connected to one or more wand capacitors switching the frequencies of

operation of said probe and forming an electrical short circuit across said 1/4 wave shorted stub. ---

J) Replace claim 10 of the August 13th 2004 amendment response with the following **Examiner amended claim 10**:

Claim 10 --- An adjustable 1/4 wave assembly of NMR spectrometry comprising:
a probe having a probe coil and probe capacitors, which detect NMR signals, and
a multinuclear frequency adjustable detachable wand having:
a sliding collar made of electrically conductive material;
a central conducting rod supporting said sliding collar;
means for fixing a position of said sliding collar on said central conducting rod;
a tube surrounding said rod and said conducting collar;
finger contacts disposed on the periphery of said conducting collar,
providing electrical contact with said tube,
wherein said conducting rod, sliding collar and said tube form a 1/4 wave shorted stub. ---

K) Replace claim 11 of the August 13th 2004 amendment response with the following **Examiner amended claim 11**:

Claim 11 --- The adjustable 1/4 wave assembly of **claim 10**, wherein said probe further comprising:
an electrical socket and said wand further comprising:
a mating electrical plug of two or more electrical PIN contacts forming connections between said probe and said wand when said wand is attached to said probe. ---

L) Replace claim 12 of the August 13th 2004 amendment response with the following **Examiner amended claim 12**:

Claim 12 --- The adjustable 1/4 wave assembly of **claim 11**, wherein said electrical socket is coupled to said probe coil and to one or more probe capacitors, with said electrical plug coupled to an electrical wiring. ---

M) Replace claim 13 of the August 13th 2004 amendment response with the following **Examiner amended claim 13**:

Claim 13 --- The adjustable 1/4 wave assembly of **claim 12**, wherein said wand further comprising up to three wand capacitors. ---

N) Replace claim 14 of the August 13th 2004 amendment response with the following **Examiner amended claim 14**:

Claim 14 --- The adjustable 1/4 wave assembly of **claim 13**, wherein said electrical wiring includes spring clips, that provide selective mounting of said wand capacitors. ---

O) Replace claim 15 of the August 13th 2004 amendment response with the following **Examiner amended claim 15**:

Claim 15 --- The adjustable 1/4 wave assembly of **claim 14**, wherein said wand further comprising electrical jumpers. ---

P) Replace claim 16 of the August 13th 2004 amendment response with the following **Examiner amended claim 16**:

Claim 16 --- The adjustable 1/4 wave assembly of **claim 15**, wherein said electrical wiring includes spring clips, which provide selective insertion of one or more electrical jumpers. ---

Q) Replace claim 17 of the August 13th 2004 amendment response with the following **Examiner amended claim 17**:

Claim 17 --- The adjustable 1/4 wave assembly of **claim 16**, wherein one capacitor of said wand is connected in parallel with said probe coil and lowers the resonant frequency of said probe. ---

R) Replace claim 18 of the August 13th 2004 amendment response with the following **Examiner amended claim 18**:

Claim 18 --- The adjustable 1/4 wave assembly of **claim 17**, wherein said electric wiring is connected to one or more wand capacitors when switching the frequency of said probe and making it sensitive to a different pair of nuclei. ---

Examiner's Comment

Drawings

4. A New set of corrected drawings are required in this application because the official draftsman has objected to the drawings submitted **August 13th 2004** and **July 21st 2003**, due to toner lines in the submitted fax of the replacement drawings etc., A

complete set of NEW FORMAL DRAWINGS including any and all examiner approved drawing changes, that have occurred during this examination are now required. [See the attached PTO 948 form of the Official Draftsperson's Review.]

5. Applicant is advised to employ the services of a competent patent draftsman outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

The following is an examiner's statement of **Reasons for Allowance**:

6. With respect to **Examiner amended claims 1-18**, These claims are allowable over the prior art of record because the **prior art of record** does not disclose or suggest an MRI apparatus comprising "An adjustable 1/4 wave assembly of NMR spectrometry comprising" (i.e. **claim 1**) / having (**claim 10**): **"a probe having a probe coil and probe capacitors which detect NMR signals; a multinuclear frequency adjustable detachable wand comprising: a central conducting rod supporting a sliding collar made of electrically conductive material; a tube fixed to said probe receiving therein said detachable wand; and contacts disposed on a periphery of said sliding collar providing electrical contact with said tube when said detachable wand is inserted into said tube, wherein said wand and said tube form a 1/4 wave shorted stub."** It is the combination of the **examiner amended claim limitations of independent claims 1, and 10** taken as a whole that constitutes both the novelty and non-obviousness of applicant's **examiner amended independent claims**.

7. The applicant's combined structure of a multinuclear frequency adjustable detachable wand, with the electrical contacts on a sliding electrically conductive collar, as set forth by applicant is not taught or suggested by the prior art of record. The examiner agrees with applicant's arguments on page 11 the second to last paragraph, through page 12 paragraph 2 of the August 13th 2004 amendment response that there is a fundamental difference between the **Munsell** reference and applicant's claims. The examiner further agrees that the **Munsell** reference fails to show applicant's sliding collar with electrical contacts disposed on a periphery of said sliding collar.

8. The examiner notes that **examiner amended claims 2-9 and 11-18** are considered to be allowable over the **prior art of record** because they depend from an **allowable examiner amended independent claim**. Additionally the examiner agrees with applicant's arguments on page 12 second to last paragraph through page 15 of the August 13th 2004 response that these dependent claims are also not met by the **Munsell** reference, for the reasons argued by applicant.

9. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Prior Art Made of Record

10. The **prior art made of record** and not relied upon is considered pertinent to applicant's disclosure.

A) Fujito US patent 4,996,482 issued February 26th 1991, which shows a structure similar to **Munsell et al.**, applied above.

B) Finnigan US patent 5,768,089 issued June 16th 1998 which shows a structure similar to **Munsell et al.**, applied above. .

C) Kikinis US patent 5,390,673 issued February 21st 1995 which shows a hand-held NMR RF burst probe with a removable receptacle.

D) Lee et al., US patent 6,714,809 B2 issued March 30th 2004, filed November 20th 2001, with an effective US priority 102 (e) date of November 20th 2000, which shows a

connector and Guidewire connectable thereto which is detachable. [See entire reference].

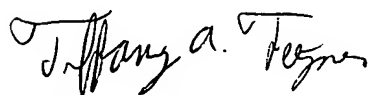
E) Lee et al., US patent application publication 2002/0161421 A1 published October 31st 2002, which is the corresponding publication of the **Lee et al.**, US patent 6,714,809 B2 noted above, filed November 20th 2001, with an effective US priority 102 (e) date of November 20th 2000, which also shows a connector and Guidewire connectable thereto which is detachable. [See entire reference].

F) Munsell et al., US patent 5,982,179 issued November 9th 1999, filed June 4th 1997.

Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tiffany Fetzner whose telephone number is: (571) 272-2241. The examiner can normally be reached on Monday-Thursday from 7:00am to 4:30pm., and on alternate Friday's from 7:00am to 3:30pm.

12. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego Gutierrez, can be reached at (571) 272-2245. The **only official fax phone number** for the organization where this application or proceeding is assigned is **(703) 872-9306**.



TAF
September 2, 2004



Diego Gutierrez
Supervisory Patent Examiner
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